

## Case Report

### McDonald's suture: A successful case

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#### Abstract

Cervical incompetence is characterized by painless dilatation of the incompetent cervix and results in miscarriages and preterm delivery during second trimester. Cervical cerclage (CC) has been utilized for the cure of loss in second trimester pregnancy. The detection of cervical incompetency is difficult. Usually patients have history of repeated second trimester demise or early preterm delivery after cervical dilatation without pain having no bleeding, contractions, or other reasons. We report a 28 years old patient, 3<sup>rd</sup> gravida, para 0+2, at 11 weeks' gestation with the diagnosis of cervical incompetence, in whom cervical cerclage (McDonald's suture) was performed successfully. There were no operative or immediate postoperative complications. A healthy infant was delivered at 37 weeks by caesarean section. After delivery the suture was removed. Cervical cerclage during pregnancy can be safe and effective treatment for well-selected patients with cervical incompetence.

**Keywords:** Cervical cerclage, Cervical incompetence, McDonald cerclage, Preterm delivery.

#### Introduction

Cervical incompetence occurs in 0.5% to 1% of all pregnancies and has a recurrence risk of 30%. Patients typically present pelvic pressure and cervical dilatation in the absence of uterine activity or ruptured membranes in the first and second trimester.<sup>1</sup> Preterm birth stays as one of the most common reasons of perinatal illness and death.

Therapeutic or prophylactic cervical cerclage is recommended treatment for cervical incompetence. It is typically performed transvaginally during the first trimester for those patients with a confirmed diagnosis of cervical incompetence who are pursuing normal childbearing.

This article describes our experience with the placement of cervical cerclage.

A short cervical length on transvaginal ultrasonography has been found as one of the top forecasters of preterm birth.<sup>2,3,4</sup> Once a short cervical length is perceived, strengthening the cervix and retaining at best the bottom half of the endocervical canal sealed by a stitch (cerclage) has been suggested as useful cure.<sup>5</sup> CC is the placement of a stitch inside and about the border of

the cervix, (with the goal to upkeep its reliability and keep closed) for preventing or curing cervical deficiency and resulting natural preterm birth. Transvaginal cerclage in pregnancy was initially narrated in 1955 and was done by an obstetrician V. Shirodkar in year 1951.<sup>6</sup> Multiple

studies showed deviations on the surgical method of transvaginal cerclage and McDonald procedure is widely

utilized.<sup>7,8</sup> Detailed technical info of CC have been studied for their efficiency in extending pregnancy.<sup>9</sup>

A study on 24 women treated with emergency CC in the late second trimester having advanced cervical dilatation showed that pregnancy continuation, live births and neonatal survival results are better in post emergency CC.<sup>10</sup>

#### Case report

A 28 year old woman at 9 weeks of gestation, 3<sup>rd</sup> gravida, para 0+2, was referred to our hospital with a highly suggestive of cervical incompetence. She had a past history of 2 spontaneous preterm deliveries at 24 and 26 weeks of gestations. Her pregnancy was confirmed by USG and she was on regular antenatal checkup. She has no history of DM, HTN, hypothyroidism.

On physical examination, the cervix was exceedingly short, closed, and flush with the lateral vaginal fornix. Transvaginal ultrasound scanning confirmed a singleton intrauterine pregnancy and the size of fetus was consistent with 9 weeks of gestation without any anomaly. Her cervical length was short with a functional length of 1.70 cm on USG. It was determined that she was a candidate for cervical cerclage. She has no history of fever and her other biochemical investigations like CBC, Urine R/M/E and C/S, blood sugar were within normal level.

Extensive counseling regarding the risks and benefits of the procedure was provided. The patient was taken to

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surgery at 11 weeks for cervical cerclage under spinal anaesthesia. The McDonalds suture was done with the 5-mm mersilene tape.



**Figure 1: Insertion of mersilene tape**



**Figure 2: Making knots of McDonald's suture**

Post operatively she received intravenous antibiotics and other hormonal supports. Her Hb% was 9.8 g/dl, WBC 9.2x10<sup>9</sup>/L, CRP was 4 mg/L. Fetal cardiac activity was confirmed before and after the procedure. The patient was discharged from the hospital after a 24-hour observation period. No tocolytic agents were used at the time or

after the procedure. After the operation, postoperative findings were checked that mersilene tape was placed in proper position in the cervix by the transvaginal 2- and 3-dimensional ultrasonography.

The patient was discharged with oral antibiotic and other hormonal support like Inj. Hydroxyprogesterone caproate, Tab. Dydrogesterone, After that patient was regular antenatal checkup and serial trans-vaginal scans of the cervix were performed to see length of cervix. At 28 weeks of gestation Steroid injection was given to patient for lung maturation of fetus.

The rest of her pregnancy was unremarkable. She was scheduled to undergo a planned cesarean section for 37 weeks of gestation. She underwent at low transverse cesarean delivery and the ligature was removed. The infant weighted 2.4kg with Apgar scores of 7 and 8. The mother and the baby did well after surgery and were released after three days.

### **Discussion and conclusion**

Cervical incompetence has been traditionally treated with a cerclage placed in the vaginal portion of the cervix in the subsequent pregnancy.<sup>1</sup> The treatment of choice for the last 50 years was cervical cerclage.<sup>11</sup>

Women must be informed of the elevated danger of pyrexia for patient and remedied appropriately.<sup>12</sup> The customary cure of cervical incompetence is trans-vaginal CC. A prophylactic cerclage is measured as a primary inhibition, named as primary cerclage. A

therapeutic cerclage is named as secondary cerclage, except the membranes are open to the vagina so named as tertiary cerclage. A primary cerclage avoids decreasing cervical length, a secondary cerclage including bed-rest averts preterm birth prior to 34 weeks of pregnancy, while a tertiary cerclage including bed-rest decreases preterm birth prior to pregnancy at 34 weeks but bed-rest only cannot.<sup>13</sup> A guide gives an advice to clinicians to decide women who have the highest probability of having cervical incompetency and what situation is a cerclage most useful.<sup>14</sup> CC tries to extend pregnancy in women having cervical inability. There is no proper technique for finding the disorder, although it is alleged to happen in parous patients in earlier mid-trimester losses linked to cervical dilatation without pain. Maximum cerclage surgeries are achieved by the vaginal path as compared to MacDonald and Shirodkar methods. Trans- abdominal cerclage is advocated, although it creates extra illness and Caesarean section is needed for the birth. It locks the suture over the height of placing, while the sutures which are inserted vaginally are located at a lower stage in the cervix.<sup>15</sup>

Complications of conventional cervical cerclage include chorioamnionitis, and this may be a result of the presence of the suture in the cervix.<sup>11</sup>

This case supports the conclusion that cervical cerclage is a safe and effective procedure in properly selected patients to prevent preterm deliveries.

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## References

1. Shennan A, Jones B. The cervix and prematurity: aetiology, prediction and prevention. *Semin Fetal Neonatal Med.* 2004;9:471–479. [PubMed] [Google Scholar]
2. Iams JD, Goldenberg RL, Meis PJ, Mercer BM, Moawad A, Das A, et al. The length of the cervix and the risk of spontaneous premature delivery. *N Engl J Med.* 1996;334(9):567-72.
3. Berghella V, Daly SF, Tolosa JE, DiVito MM, Chalmers R, Garg N, et al. Prediction of preterm delivery with transvaginal ultrasonography of the cervix in patients with high-risk pregnancies: does cerclage prevent prematurity? *Am J Obstet Gynecol.* 1999;181(4):809-15.
4. Owen J, Yost N, Berghella V, Thom E, Swain M, Dildy GA, et al. Mid-trimester endovaginal sonography in women at high risk for spontaneous preterm birth. *JAMA.* 2001; 286(11):1340-8.
5. Berghella V, Odibo A, To M, Rust O, Althuisius S. Cerclage for Short Cervix on Ultrasonography. *Meta-Analysis of Trials Using Individual Patient-Level Data.* *Obstetrics and Gynecol.* 2005; 106(1):181-9.
6. Shirodkar V. A new method of operative treatment for habitual abortions in the second trimester of pregnancy. *Antiseptic.* 1955; 52: 299-300.
7. McDonald IA. Suture of the cervix for inevitable miscarriage. *J Obstet Gynaecol Br Emp.* 1957; 64(3):346-50.
8. Shortle B, Jewelewicz R. *Clinical aspects of cervical incompetence.* Chicago: Yearbook Medical Publishers; 1989.
9. Berghella V, Ludmir J, Simonazzi G, Owen J. Transvaginal cervical cerclage: evidence for perioperative management strategies. *Am J Obstet and Gynecol.* 2013 Sep 1;209(3):181-92.
10. Prasad NN, Thampan SA, Nagarathnamma R. Emergency cervical cerclage and pregnancy outcomes. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology.* *Int J Reprod Contracept Obstet Gynecol* 2017; 6(5):1993-8.
11. Harger JH. Cerclage and cervical insufficiency: an evidence-based analysis. *Obstet Gynecol.* 2002;100:1313–1327. [PubMed] [Google Scholar]
12. Jorgensen AL, Alfirevic Z, Smith CT, Williamson PR. on behalf of the cerclage IPD. Meta-analysis Group. Cervical stitch (cerclage) for preventing pregnancy loss: individual patient data meta-analysis. *BJOG.* 2007 Dec;114(12):1460-76. Epub 2007 Sep 27.
13. Althuisius SM, van Geijn HP. Strategies for prevention-cervical cerclage. *BJOG.* 2005;112(1): 51-6.
14. Brown R, Gagnon R, Delisle MF. Cervical Insufficiency and Cervical Cerclage. *J Obstet Gynaecol Can.* 2013;35(12):1115-27.
15. Quinn MJ. Vaginal ultrasound and cervical cerclage: a prospective study. *Ultrasound Obstet. Gynecol.* 1992;2(6):410-6.